

EJSCREEN: Environmental Justice Screening and Mapping Tool

How to Interpret a Standard Report in EJSCREEN

Block Groups

One key output from EJSCREEN is a standard printed report that describes a selected location. Sometimes the report might focus on a single Census "block group." A block group is an area defined by the Census Bureau that usually has in the range of 600-3,000 people living in it. The US is divided into more than 200,000 block groups.

Buffers

More typically, though, an EJSCREEN report will cover a "buffer" area, an area on the map that includes everyone who lives within a certain distance of a point, line or polygon. A point might be a factory seeking an emissions permit, for example, and the report could focus on the demographics and environmental conditions within approximately 1 mile of that factory.

In EJSCREEN, buffers can be drawn up to 10 miles around a point, line or polygon. If you have selected a geographic point, the tool will apply a buffer around that point. The buffer ring will aggregate appropriate portions of the intersecting block groups, weighted by population, to create a representative set of data for the entire ring area, honoring variation and dispersion of the population in the block groups within it. For each indicator, the result is a population-weighted average, which equals the block group indicator values averaged over all residents who are estimated to be inside the buffer.

EJSCREEN's report shows:

- · All 12 of the EJ Indexes
- · All 12 of the environmental indicators
- The Demographic Index
- · All six of the demographic indicators

The first page of EJSCREEN's report shows the state, regional and national EJ Indexes for the selected area in tabular form and in a bar chart. "Percentiles" are an important part of EJSCREEN. Every indicator in EJSCREEN is put into perspective by showing its associated percentiles.

Percentiles

Percentages or Percentiles?

A percentage is an absolute term. If you received 80% on a test of one hundred questions you had 80 correct answers.

A percentile is a relative term, and tells you how you have done on the test in comparison to the others who

How to Interpret a Standard Report in EJSCREEN | EJSCREEN: Environmental Justice Screening and Ma... Page 2 of took the test. A percentile of 8 ...neans that you scored equal to or better than 80% of people who took the test.

In EJSCREEN, if your results indicate that an area is 48% minority and is at the 69th national percentile, this means that 48% of the area's population is minority, and that is an equal or higher % minority than where 69% of the US population lives.

Percentiles are a way to see how local residents compare to everyone else in the United States. Instead of just showing numbers out of context, EJSCREEN lets you compare a community to the rest of the state, EPA region and nation, by using percentiles. The national percentile tells you what percent of the US population has an equal or lower value, meaning less potential for exposure/ risk/ proximity to certain facilities, or a lower percent minority.

The second page shows a map of the selected area and the third page shows:

- 12 environmental indicators
- Demographic Index
- · six demographic indicators

The report includes the state, regional and national percentiles for each of the environmental and demographic indicators and for the demographic index. The state, regional and national averages for each of the environmental indicators and demographic indicators are also included as a reference point.

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Overview of Environmental Indicators in EJSCREEN

EJSCREEN provides 12 environmental indicators:

| | | Summar | y Table of Environmental Indi | cators and Data Sources | |
|-----|---------------|---|---|---|----------------------|
| | Key Medium | Indicator | Details | Source | Data Year |
| Air | | - TO SEE SEE SEE SEE SEE SEE SEE SEE SEE SE | Lifetime cancer risk from inhalation of air toxics | EPA NATA | (update underway) |
| | | | | | |
| Air | | NATA neurological hazard index* | Air toxics neurological hazard index (ratio of exposure concentration to health-based reference concentration) | EPA NATA | (update underway) |
| | | | | a temperature of the second | |
| Air | | NATA respiratory hazard index* | Air toxics respiratory hazard index (ratio of exposure concentration to health-based reference concentration) | EPA NATA | (update underway) |
| | | | | | |
| Air | | NATA diesel PM* | Diesel particulate matter level in air, $\mu g/m^3$ | EPA NATA | (update underway) |
| | | | | | |
| Air | | Particulate matter | $PM_{2.5}$ levels in air, $\mu g/m^3$ annual avg. | EPA, Office of Air and Radiation (OAR) fusion of model and monitor data | 2011 |
| | | | | | |
| Aiı | r | Ozone | Ozone summer seasonal avg. of daily maximum 8-hour concentration in air in parts per billion | EPA, OAR fusion of model and monitor data | 2011 |
| | | | | | |

| Key Medium | Indicator | Details | Source | Data Year |
|----------------------|--|---|--|------------------------|
| Air/other | Traffic proximity and volume | Count of vehicles (AADT, avg. annual daily traffic) at major roads within 500 meters, divided by distance in meters (not km) | Calculated from 2011 U.S. Department of Transportation (DOT) traffic data, retrieved 4/2012 | 2011 |
| | | i an harmon i amarina ann agu | the state of the second section of the section of the second section of the section of the second section of the | ika panga sa |
| | Lead paint | Percent of housing units built pre-1960, as indicator of potential lead paint exposure | Calculated based on Census/American Community Survey (ACS) data, retrieved 2014 | 2008- 2012 |
| | | | | |
| | Proximity to | Count of RMP (potential chemical accident management plan) facilities | Calculated from EPA's RMP | |
| vater | Management Plan (RMP) | within 5 km (or nearest one beyond 5 km), each divided by distance in kilometers | database, retrieved 11/2013 | 2013 |
| | | by distance in knometers | | |
| Waste/ air/ vater | Storage and Disposal | Count of TSDFs (hazardous waste management facilities) within 5 km (or nearest beyond 5 km), each divided by distance in kilometers | Calculated from EPA's Resource Conservation and Recovery Act (RCRA) Info database, retrieved 11/2013 | 2013 |
| | | A DR E-Green (Mesery) | | gran america Si Ana |
| Waste/ air/ vater | Proximity to National Priorities List (NPL) sites | Count of proposed or listed NPL - also known as superfund - sites within 5 km (or nearest one beyond 5 km), each divided by distance in kilometers | Comprehensive Environmental Response, Compensation and | 2013 |
| * | | 15.8 | | |
| Water | Proximity to major direct water | Count of National Pollutant Discharge Elimination System (NPDES) major direct water discharger facilities within 5 km (or nearest one beyond 5 km), each divided by distance | Calculated from EPA's Permit Compliance System/ Integrated Compliance Information System (PCS/ICIS) database, retrieved 12/2013 | 2013 |

^{*} The National-scale Air Toxics Assessment (NATA) environmental indicators will be added into EJSCREEN during the first full public update after the soon-to-be-released 2011 NATA dataset is made available.

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Note: EJSCREEN's EJ Indexes also include demographic information that is obtalled from the U.S. Census Bureau's American Community Survey (ACS). The 2015 version of EJSCREEN includes 2008-2012 ACS 5-year summary file data, which is based on 2012 Census boundaries.

It is important to understand what each of these is measuring or indicating, in order to use EJSCREEN appropriately. There are important caveats and limitations to these screening-level indicators and anyone using EJSCREEN is encouraged to read these carefully.

Read more information about Environmental Indicators (PDF) (123 pp, 1 MB, About PDF), including documentation of data sources.

Some of these environmental indicators quantify proximity to and the numbers of certain types of potential sources of exposure to environmental pollutants, such as nearby hazardous waste sites or traffic. The lead paint indicator indicates the presence of older housing, which often, but not always, indicates the presence of lead paint, and therefore the possibility of exposure. In some cases, the term "exposure" is used very broadly here to refer to the potential for exposure. Others indicators in EJSCREEN are estimates of ambient levels of air pollutants, such as PM_{2.5}, ozone and diesel particulate matter. Still others are actual estimates of air toxics-related cancer risk or a hazard index, which summarizes the ratios of ambient air toxics levels to health-based reference concentrations. In other words, these environmental indicators vary widely in what they indicate.

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Overview of Demographic Indicators in EJSCREEN

EJSCREEN uses demographic factors as very general indicators of a community's potential susceptibility to the types of environmental factors included in this screening tool, as explained further in the EJSCREEN Technical Documentation. EJSCREEN has been designed in the context of EPA's EJ policies, including EPA's Final Guidance on Considering Environmental Justice During the Development of an Action (U.S. EPA, 2010) (PDF) (56 pp, 594 K, About PDF). That guidance document explained EPA's focus on demographics as an indicator of potential susceptibility to environmental pollution.

There are six demographic indicators:

1. Percent Low-Income:

 The percent of a block group's population in households where the household income is less than or equal to twice the federal "poverty level."

2. Percent Minority:

The percent of individuals in a block group who list their racial status as a race other than white alone
and/or list their ethnicity as Hispanic or Latino. That is, all people other than non-Hispanic white-alone
individuals. The word "alone" in this case indicates that the person is of a single race, not multiracial.

3. Less than high school education:

· Percent of people age 25 or older in a block group whose education is short of a high school diploma.

4. Linguistic isolation:

Percent of people in a block group living in linguistically isolated households. A household in which all
members age 14 years and over speak a non-English language and also speak English less than "very
well" (have difficulty with English) is linguistically isolated.

5. Individuals under age 5:

• Percent of people in a block group under the age of 5.

6. Individuals over age 64:

• Percent of people in a block group over the age of 64.

EJSCREEN provides two indexes that are based on the above demographic indicators:

- A Demographic Index is based on the average of two demographic indicators; Percent Low-Income and Percent Minority.
- A Supplementary Demographic Index is based on the average of the all six demographic indicators.

Read more detailed information about Demographic Indicators in the EJSCREEN Technical Documentation, including data sources.

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